

## Long Term Scheme of Work for Design and Technology

**Curriculum Intent:** At Dashwood, our design and technology curriculum inspires pupils to use their creativity to make products and solve real life problems. The pupils will be resourceful, innovative and enterprising ensuring they are ready for 21st Century life.

**Whole School thread:** i) Express creativity and imagination ii) Design and make real and purposeful products iii) The impact of design and technology on their lives; how it has changed over time and will change to meet the demands of the future

Year group	<p style="text-align: center;"><b>'Need to knows'</b></p> <p style="text-align: center;"><i>Including: safety and programming</i></p>	<p style="text-align: center;"><b>Skills</b></p>	<p style="text-align: center;"><b>Key Vocabulary</b></p>
N	<p><b>Expressive arts and design: Exploring and using media and materials (i)</b></p> <ul style="list-style-type: none"> <li>→ To know that different materials, marks and colours can be used to create an outcome</li> </ul>	<ul style="list-style-type: none"> <li>→ I can experiment with blocks, colours and marks.</li> </ul>	Colours Drawing Mark-making
R	<p><b>Expressive arts and design: Exploring and using media and materials (i) (ii)</b></p> <ul style="list-style-type: none"> <li>→ To know that materials feel different eg: different textures</li> <li>→ To know that different materials can be used in construction</li> <li>→ To know that construction materials can be used to make enclosures</li> <li>→ To know that construction materials can be joined to make a structure more stable (balanced)</li> <li>→ To know that different tools can be used for different purposes</li> </ul>	<ul style="list-style-type: none"> <li>→ I can make something</li> <li>→ I can use tools for a purpose eg: scissors to make snips in paper</li> <li>→ I can join objects together</li> <li>→ Beginning to be interested in and describe the texture of things</li> <li>→ Uses various construction materials</li> <li>→ Beginning to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces</li> <li>→ Joins construction pieces together to build and balance</li> <li>→ Realises tools can be used for a purpose</li> </ul>	
1	<p><b>Design</b></p>	<ul style="list-style-type: none"> <li>→ I can use my own ideas to make something.</li> </ul>	Product

	<ul style="list-style-type: none"> <li>→ To know that the design process helps create purposeful, functional and appealing products (ii)</li> <li>→ To understand that generating, developing, modelling and communicating ideas eg: through drawing, talking supports effective outcomes (i) (iii)</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>→ To begin to know which resources and tools would be appropriate to perform practical tasks (i) (ii)</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>→ To know that through exploring and evaluating a range of existing products, we can find out how they work and improve our own (iii)</li> </ul> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>→ To know that mechanisms allow products to move eg: leavers, sliders, wheels and axles (ii)</li> <li>→ To describe how a product moves using basic science knowledge of push/pull forces and electricity (ii)</li> <li>→ I know that different materials and textiles have different purposes (ii)</li> <li>→ To know how structures can be made stronger, stiffer and more stable (ii)</li> </ul> <p><b>Cooking and Nutrition</b></p> <ul style="list-style-type: none"> <li>→ To know where food comes from</li> <li>→ To use the basic principles of a healthy and varied diet to prepare dishes (ii)</li> </ul>	<ul style="list-style-type: none"> <li>→ I can make a product which moves.</li> <li>→ I can explore and use mechanisms</li> <li>→ I can make my model stronger.</li> <li>→ I can explain to someone else how I want to make my product.</li> <li>→ I can make a simple plan before making</li> <li>→ I understand what a balanced diet is and why this is important.</li> <li>→ I can group foods into the main food groups.</li> <li>→ I can select from a wide range of materials and textiles</li> <li>→ I can explore how structures I create and can be made stronger, stiffer and more stable</li> </ul>	<p>push/pull Force Model Plan Leavers Sliders Wheels Axis Stronger</p>
2	<p><b>Design</b></p> <ul style="list-style-type: none"> <li>→ To know that the design process helps create purposeful and functional products (ii)</li> <li>→ To understand that generating, developing, modelling and communicating ideas eg: through drawing, talking supports effective outcomes (ii)</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>→ To begin to know which resources and tools would be appropriate to perform practical tasks eg: for cutting, shaping, joining and finishing (i) (ii)</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>→ To know that through exploring and evaluating a</li> </ul>	<ul style="list-style-type: none"> <li>→ I can think of an idea and plan what to do next.</li> <li>→ I can choose tools and materials and explain why I have chosen them.</li> <li>→ I can join materials and components in different ways.</li> <li>→ I can explain what went well with my work.</li> <li>→ I can explain why I have chosen specific textiles.</li> <li>→ I can measure materials to use in a model or structure.</li> <li>→ I can use the basic principles of a healthy and varied diet to prepare dishes. I understand the concept of a balanced diet.</li> </ul>	<p>Purpose Function Tools Equipment Construct Textiles Ingredients Stiffer Stable</p>

	<p>range of existing products against a design criteria, we can find out how they work and improve our own (ii) (iii)</p> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>→ To know how, when building structures, they can be made stronger, stiffer and more stable (ii)</li> </ul> <p><b>Cooking and Nutrition</b></p> <ul style="list-style-type: none"> <li>→ To know and use the basic principles of a healthy and varied diet to prepare dishes (ii)</li> <li>→ To know where food comes from (ii)</li> </ul>	<ul style="list-style-type: none"> <li>→ I can cut, peel, grate and chop a range of ingredients.</li> <li>→ I can measure out ingredients with support.</li> </ul>	
3	<p><b>Design</b></p> <ul style="list-style-type: none"> <li>→ To know how research and working to design development criteria informs the design of innovative, functional and appealing products that are fit for purpose (ii)</li> <li>→ To understand that generating, developing, modelling and communicating ideas eg: through discussion, diagrams (ii)</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>→ To know a wider range of tools and materials to perform practical tasks effectively eg: cutting, shaping, joining and finishing and how to use them effectively (i) (ii)</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>→ To know that through exploring and evaluating a range of existing products against a design criteria, we can find out how they work and improve our own</li> <li>→ To know that the views of others help us to improve our work (ii) (iii)</li> </ul> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>→ To know and use ways to strengthen, stiffen and reinforce structures (ii)</li> </ul> <p><b>Cooking and Nutrition</b></p> <ul style="list-style-type: none"> <li>→ To understand the basic principles of a healthy and varied diet to prepare dishes</li> <li>→ To know a range of cooking techniques to prepare and cook savoury dishes (ii)</li> <li>→ To know the main food groups eg: vegetables, fruit,</li> </ul>	<ul style="list-style-type: none"> <li>→ I can discuss that my design meets some set criteria.</li> <li>→ I can follow a step-by-step plan, choosing the right equipment and materials.</li> <li>→ I can design a product and make sure that it looks attractive.</li> <li>→ I can choose a textile for both its suitability and its appearance.</li> <li>→ I can select the most appropriate tools and techniques for a given task.</li> <li>→ I can make a product which requires strengthening techniques.</li> <li>→ I can work accurately to measure, make cuts and make holes.</li> <li>→ Design &amp; Technology – Cooking and Nutrition</li> <li>→ I can join and combine a range of ingredients when making a range of savoury dishes.</li> <li>→ I can make healthy eating choices.</li> <li>→ I can work safely and hygienically when preparing and cooking food and understand why this is important.</li> <li>→ I can measure and weigh ingredients using appropriate equipment and standard units of measurements.</li> </ul>	<p>Protein Meat Dairy Starchy Carbohydrate Fat and sugar Food group Classify Innovative Functional Appealing Fit for purpose Prototype Annotated sketch Reinforce Savoury</p>

	protein including meat, dairy, carbohydrates and food high in fat/sugar		
4	<p><b>Design</b></p> <ul style="list-style-type: none"> <li>→ To know how research and working to design development criteria informs the design of innovative, functional and appealing products that are fit for purpose (ii)</li> <li>→ To understand that generating, developing, modelling and communicating ideas eg: through discussion, annotated sketches and diagrams (ii)</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>→ To know how to effectively select and use a wider range of tools, materials and equipment to perform practical tasks effectively eg: cutting, shaping, joining and finishing (i) (ii)</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>→ To know that through investigating and analysing a range of existing products against a design criteria, we can find out how they work and improve our own</li> <li>→ To begin to identify the impact of a product/design and technology on own lives (iii)</li> <li>→ To know that the views of others help us to improve our work (ii) (iii)</li> </ul> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>→ To understand the purpose of electrical systems in products and begin to use eg: circuits incorporating switches, bulb and buzzers (ii)</li> <li>→ To know how computing can be used to programme, monitor and control products eg: use of Microbits (ii)</li> </ul> <p><b>Cooking and Nutrition</b></p> <ul style="list-style-type: none"> <li>→ To know that seasonality affects the growth of ingredients</li> <li>→ To know where and how a variety of ingredients are grown and processed eg: cocoa bean</li> </ul>	<ul style="list-style-type: none"> <li>→ I can use ideas that I have researched when I am designing.</li> <li>→ I can produce a plan and explain it.</li> <li>→ I can evaluate and suggest improvements for my packaging designs.</li> <li>→ I can evaluate products for both their purpose and appearance.</li> <li>→ I can explain how I have improved my original packaging design.</li> <li>→ I can present a product in an interesting way.</li> <li>→ I can use different equipment to create nets when producing a product.</li> <li>→ I can persevere and adapt my work when my original ideas do not work.</li> <li>→ Design &amp; Technology – Cooking and Nutrition</li> <li>→ I can join and combine a range of ingredients when making a range of savoury dishes from Europe.</li> <li>→ I can understand how a healthy diet links to sporting performance.</li> <li>→ I can work safely and hygienically when preparing and cooking food and understand why this is important.</li> <li>→ I can measure and weigh ingredients using appropriate equipment and standard units of measurements.</li> </ul>	<p>Cocoa bean Nets Evaluate Textiles</p>
5	<p><b>Design</b></p> <ul style="list-style-type: none"> <li>→ To know how research and working to design</li> </ul>	<ul style="list-style-type: none"> <li>→ I can come up with a range of ideas after collecting information from different sources.</li> </ul>	<p>Gears Pulleys</p>

	<p>development criteria informs the design of innovative, functional and appealing products that are fit for purpose and meets demand (ii) (iii)</p> <p>→ To understand that generating, developing, modelling and communicating ideas eg: through discussion, annotated sketches, diagrams, prototypes and computer aided design (ii)</p> <p><b>Make</b></p> <p>→ To know how to effectively select and use a wider range of tools, materials, components and equipment to perform practical tasks effectively based on their functionality (ii)</p> <p><b>Evaluate</b></p> <p>→ To know that through investigating and analysing a range of existing products against a design criteria, we can find out how they work and improve our own (ii) (iii)</p> <p>→ To know that the views of others help us to improve our work and effectively meet demand (ii) (iii)</p> <p>→ To know how key events and individuals in design and technology have helped shape the world eg: Mister Finch - textiles (iii)</p> <p>→ To identify the impact of a product/design and technology on own lives; evaluating how it has changed over time (iii)</p> <p><b>Technical Knowledge</b></p> <p>→ To understand the purpose of mechanical systems eg: gears, pulleys, cams, levers and linkages and use them in their products (ii)</p>	<p>→ I can produce a detailed, step-by-step plan.</p> <p>→ I can suggest alternative plans; outlining the positive features and draw-backs.</p> <p>→ I can explain how a product will appeal to a specific audience.</p> <p>→ I can evaluate appearance and function against original criteria.</p> <p>→ I can use a range of tools and equipment competently.</p> <p>→ I can create an up and down mechanisms.</p> <p>→ I can understand and use mechanical systems in my products for example; gears, pulleys, cams, levers and linkages.</p> <p>→ I can make a prototype before making a final version.</p>	<p>Cams Levers Linkages Mechanism</p>
6	<p><b>Design</b></p> <p>→ To know how research and working to design development criteria informs the design of innovative, functional and appealing products (ii)</p> <p>→ To understand the importance of designing products that are fit for purpose, considering the requirements of the particular group for which they are aimed eg:</p>	<p>→ I can use market research to inform my plans and ideas.</p> <p>→ I can use models, kits and drawings to help formulate design ideas.</p> <p>→ I can follow and refine my plans by testing and evaluation.</p> <p>→ Design &amp; Technology – Cooking and Nutrition</p>	<p>Series Parallel Circuit Aesthetic appeal Functional properties</p>

	<p>air raid shelter (ii) (iii)</p> <p>→ To understand that generating, developing, modelling and communicating ideas eg: through discussion, annotated sketches, diagrams, prototypes and computer aided design (ii)</p> <p><b>Make</b></p> <p>→ To know how to effectively select and use a wider range of tools, materials, components and equipment to perform practical tasks effectively based on their functionality and aesthetic qualities (ii)</p> <p><b>Evaluate</b></p> <p>→ To know that through investigating and analysing a range of existing products against a design criteria, we can find out how they work and improve our own products and effectively meet the demand of the intended audience (ii) (iii)</p> <p>→ To know that the views of others help us to improve and adapt our work (ii) (iii)</p> <p>→ To analyse the impact of a product/design and technology on own lives; how it has changed over time and evaluate how a product will change to meet the demands of the future (iii)</p> <p><b>Technical Knowledge</b></p> <p>→ To understand the purpose of electrical systems in products and use them effectively in own products eg: circuits incorporating switches, bulb, buzzers and motors (ii) (iii)</p> <p>→ To know effective ways to strengthen, stiffen and reinforce more complex structures (ii) (iii)</p>	<p>→ I can reflect on my prior learning relating to healthy diet and food hygiene.</p> <p>→ I can select and prepare foods with a particular purpose in mind.</p> <p>→ I can weigh and measure accurately using scales.</p> <p>→ I can join and combine food ingredients appropriately such as beating, rubbing in</p> <p>→ I understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.</p> <p>→ I can work within a budget.</p>	
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